

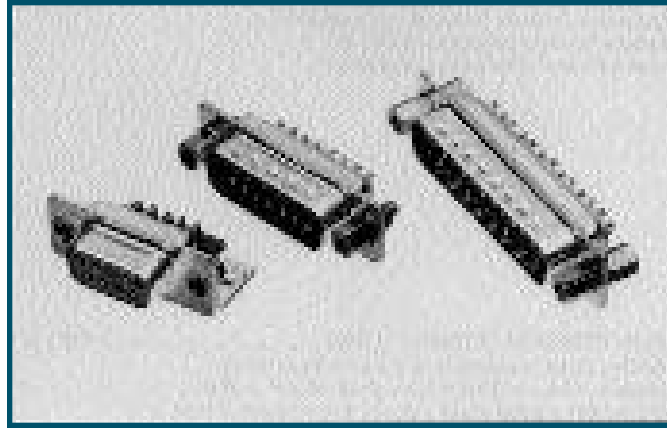
Filter-D Series

PROFESSIONAL QUALITY, FILTER SUBMINIATURE-D CONNECTORS FOR SHELTERED INDOOR/OUTDOOR ENVIRONMENTAL APPLICATIONS

Size 20 Contacts, Fixed
Professional Quality
Connectors

Capacitance Values
500pF through 30,000pF

IEC Publication 807-2
Where Applicable



Filter D-Series connectors are low profile, professional quality filter connectors recommended for use in sheltered, non-corrosive indoor or outdoor environments having normal ventilation, but without temperature or humidity controls. These fixed contact connectors meet the material and dimensional requirements of MIL-PRF-24308 and IEC 807-2.

The low profile design of the Filter-D connector utilizes an internal planar ceramic filter whose capacitance can be selected from values between 500pF through 30,000pF. An external ferrite inductor can be added if required.

Five standard connector variants are offered in arrange-

ments of 9, 15, 25, 37 and 50 contacts. Each connector variant is available with contact terminations for solder, and straight and 90° printed board mount terminations. Filter-D Series connectors are mateable and compatible with all D-Subminiature connectors conforming to IEC 807-2 and MIL-PRF-24308 having floating contacts.

A wide assortment of printed board mounting hardware is available from stock.

Filter-D Series connectors conform to EIA RS 232 and RS 449, and CCITT X.24 interface connector requirements.

FILTER-D SERIES TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator:	Glass-filled DAP per ASTM-D-5948, SDG-F, UL 94V-0, green color.
Contacts:	Male contacts – precision machined brass alloy. Female contacts – precision machined high tensile phosphor bronze.
Contact Plating:	Gold flash over nickel plate.
Shells:	Steel or brass with tin plate.
Capacitor:	Ceramic X7R.
Inductor:	Nickel/zinc ferrite.
Mounting Spacers and Brackets:	Nylon plastic, or brass with tin plate.
Push-On Fasteners:	Phosphor bronze or beryllium copper with tin plate.
JackscREW Systems:	Steel with zinc and dichromate seal, or clear zinc plate.

ELECTRICAL CHARACTERISTICS:

Capacitance Values:	500pF, 1000pF, 5000pF and 30,000pF $\pm 20\%$.
Contact Current Rating:	5 amperes nominal.
Initial Contact Resistance:	0.008 ohms maximum.
Insulation Resistance:	5 G ohms.
Clearance and Creepage Distance (minimum):	0.039 inch (1.0mm)
Initial Working Voltage:	100 V d.c. (50 V d.c. for 30,000pF)
Initial Proof Voltage:	250 V d.c. (125 V d.c. for 30,000pF)
Inductor Impedance:	Contact Factory.

CLIMATIC CHARACTERISTICS:

Temperature Range:	-55°C to +125°C
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MECHANICAL CHARACTERISTICS:

Fixed Contacts:	Size 20 contact, male contact-0.040 inch (1.02mm) diameter. Female contact-rugged open entry design.
Contact Retention in Insulator:	5 lbs. (22N)
Resistance to Solder Iron Heat:	500°F (260°C) for 10 seconds duration per IEC 512-6.
Contact Terminations:	Male solder contacts-0.042 inch (1.06mm) minimum hole diameter for 20 AWG (0.5mm ²) wire maximum. Female solder contacts-0.027 inch (0.69mm) minimum hole diameter for 24 AWG (0.25mm ²) wire maximum. Straight Printed Board Mount-0.028 inch (0.71mm) diameter. 90° Printed Board Mount-0.028 inch (0.71mm) diameter.
Shells:	Male shells may be dimpled for EMI/ESD ground paths.
Polarization:	Trapezoidally shaped shells and polarized jackscrews.
Mounting to Angle Brackets:	0.120 inch (3.05mm) clearance hole, and threaded riveted fasteners with 4-40 threads and nylon lock inserts.
Mounting to Printed Board:	Rapid installation push-on fasteners and mounting posts.
Locking Systems:	Jackscrews.
Mechanical Operations:	50 operations per IEC 512-5.
Shock:	Consult Factory.
Vibration:	Consult Factory.

CONTACT VARIANTS

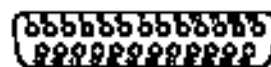
FACE VIEW OF MALE OR REAR VIEW OF FEMALE



FD 9



FD 15



FD 25

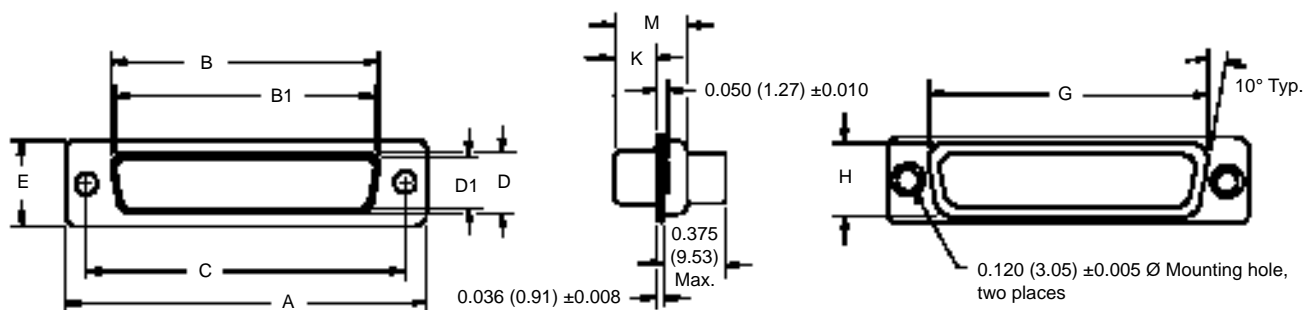


FD 37



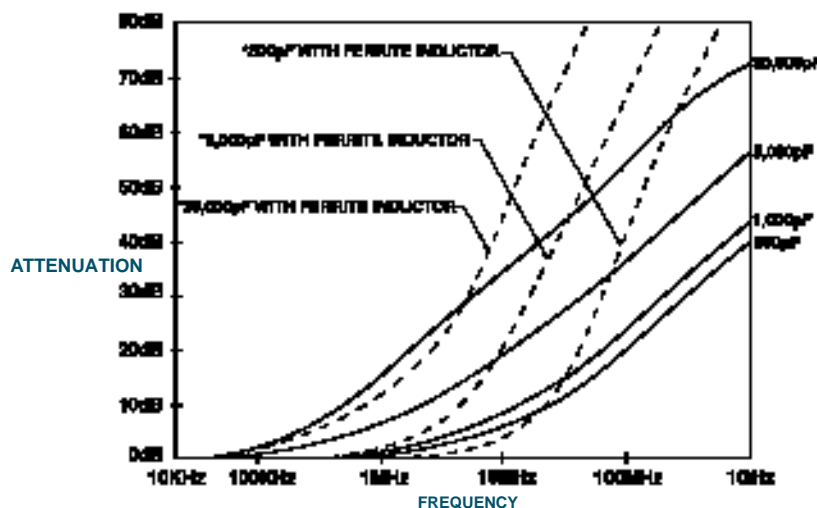
FD 50

STANDARD SHELL ASSEMBLY



CONNECTOR VARIANT SIZES	A ±0.015	B ±0.005	B1 ±0.005	C ±0.005	D ±0.005	D1 ±0.005	E ±0.015	G ±0.010	H ±0.010	K ±0.005	M ±0.010
FD 9 M	1.213 (30.81)		0.666 (16.92)	0.984 (24.99)		0.329 (8.36)	0.494 (12.55)	0.759 (19.28)	0.422 (10.72)	0.233 (5.92)	0.422 (10.72)
FD 9 F	1.213 (30.81)	0.643 (16.33)		0.984 (24.99)	0.311 (7.90)		0.494 (12.55)	0.759 (19.28)	0.422 (10.72)	0.243 (6.17)	0.429 (10.90)
FD 15 M	1.541 (39.14)		0.994 (25.25)	1.312 (33.32)		0.329 (8.36)	0.494 (12.55)	1.083 (27.51)	0.422 (10.72)	0.233 (5.92)	0.422 (10.72)
FD 15 F	1.541 (39.14)	0.971 (24.66)		1.312 (33.32)	0.311 (7.90)		0.494 (12.55)	1.083 (27.51)	0.422 (10.72)	0.243 (6.17)	0.429 (10.90)
FD 25 M	2.088 (53.04)		1.534 (38.96)	1.852 (47.04)		0.329 (8.36)	0.494 (12.55)	1.625 (41.28)	0.422 (10.72)	0.230 (5.84)	0.426 (10.82)
FD25 F	2.088 (53.04)	1.511 (38.38)		1.852 (47.04)	0.311 (7.90)		0.494 (12.55)	1.625 (41.28)	0.422 (10.72)	0.243 (6.17)	0.429 (10.90)
FD 37 M	2.729 (69.32)		2.182 (55.42)	2.500 (63.50)		0.329 (8.36)	0.494 (12.55)	2.272 (57.71)	0.422 (10.72)	0.230 (5.84)	0.426 (10.82)
FD37 F	2.729 (69.32)	2.159 (54.84)		2.500 (63.50)	0.311 (7.90)		0.494 (12.55)	2.272 (57.71)	0.422 (10.72)	0.243 (6.17)	0.429 (10.90)
FD50 M	2.635 (66.93)		2.079 (52.81)	2.406 (61.11)		0.441 (11.20)	0.605 (15.37)	2.178 (55.32)	0.534 (13.56)	0.230 (5.84)	0.426 (10.82)
FD50 F	2.635 (66.93)	2.064 (52.43)		2.406 (61.11)	0.423 (10.74)		0.605 (15.37)	2.178 (55.32)	0.534 (13.56)	0.243 (6.17)	0.429 (10.90)

FILTERING CHARACTERISTICS

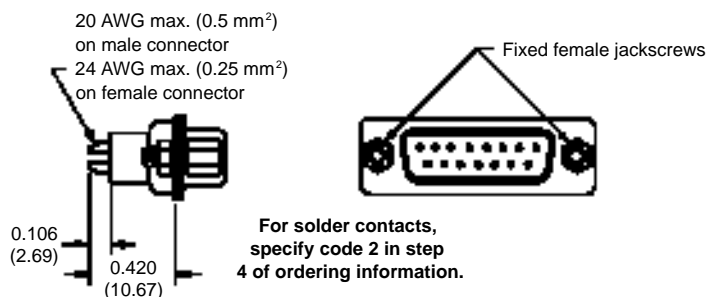


TYPICAL INSERTION LOSS FOR ALL CONNECTORS

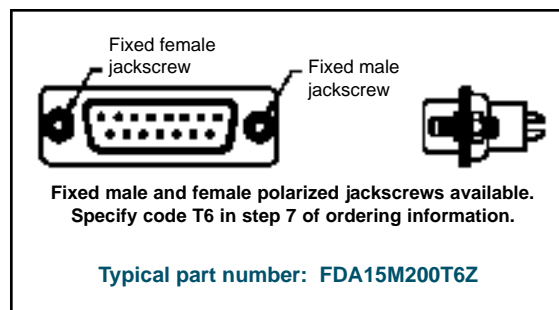
*NO LOAD CONDITION

CURVE VALUES DEVELOPED IN FARADAY CAGE

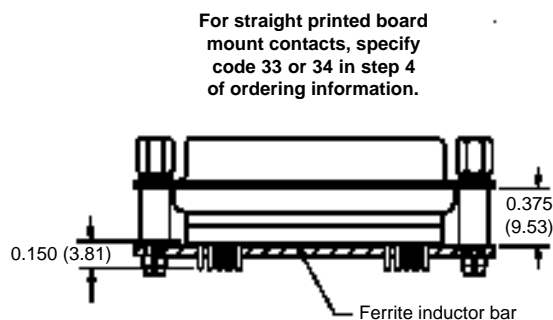
SOLDER CONNECTOR FOR PANEL MOUNTING



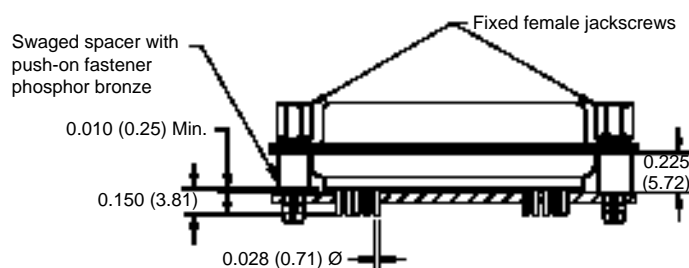
Typical part number: FDA15M200T2Z



STRAIGHT PRINTED BOARD MOUNT CONNECTOR



Typical part number: FDA25F34S7FT2X



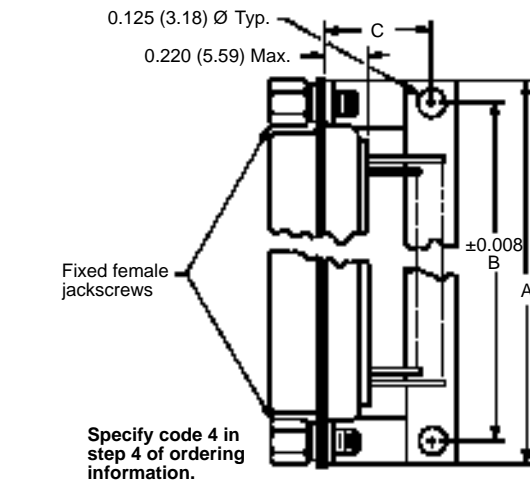
Typical part number: FDA25F33S60T2X

Low profile

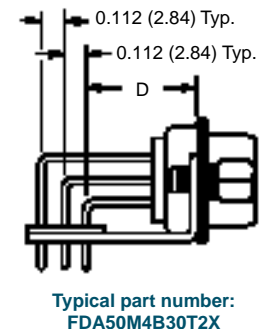
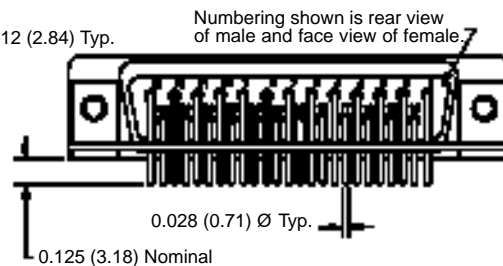
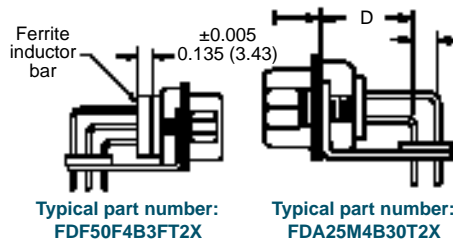
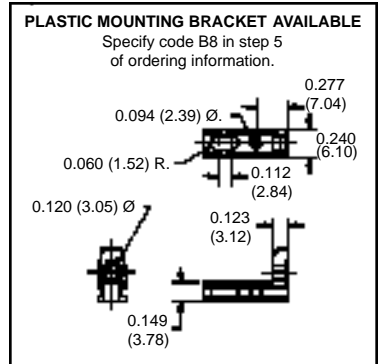
DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

90° PRINTED BOARD MOUNT CONNECTOR

CODE 4, 0.450 (11.43) CONTACT EXTENSION

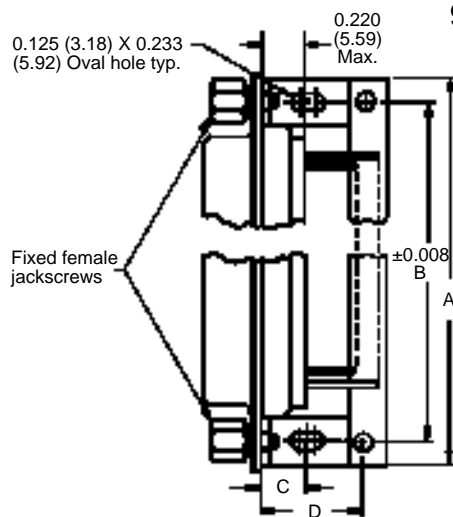


FD*004B3000 0.450 (11.43) CONTACT EXTENSION				
PART NUMBER	A	B	C	D
FD*904B3000	1.204 (30.58)	0.984 (24.99)	0.506 (12.85)	0.450 (11.43)
FD*1504B3000	1.532 (38.91)	1.312 (33.32)	0.506 (12.85)	0.450 (11.43)
FD*2504B3000	2.072 (52.63)	1.852 (47.04)	0.506 (12.85)	0.450 (11.43)
FD*3704B3000	2.720 (69.09)	2.500 (63.50)	0.506 (12.85)	0.450 (11.43)
FD*5004B3000	2.626 (66.70)	2.406 (61.11)	0.562 (14.27)	0.450 (11.43)

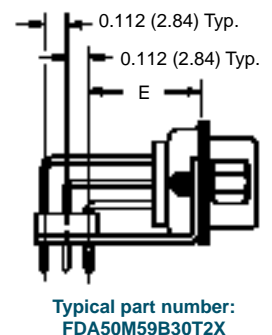
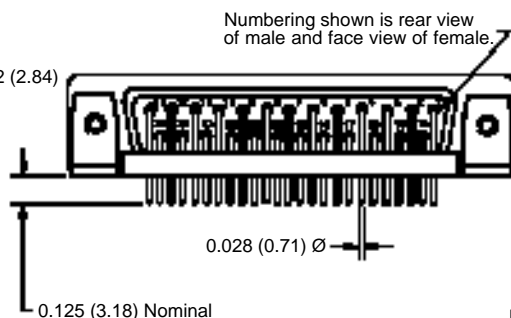
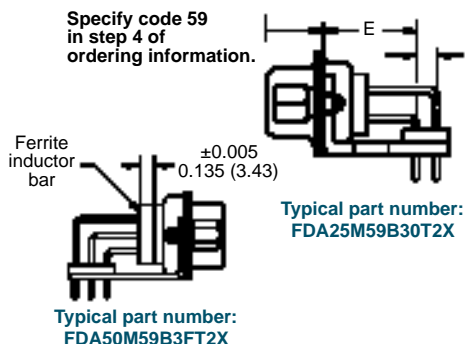
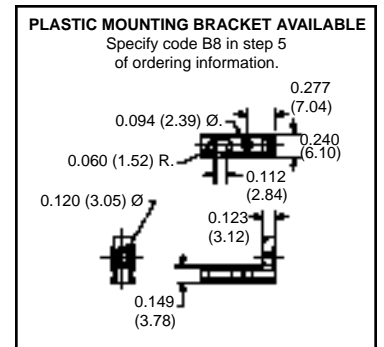


90° PRINTED BOARD MOUNT CONNECTOR

CODE 59, 0.545 (13.84) CONTACT EXTENSION



FD*0059B3000 0.545 (13.84) CONTACT EXTENSION					
PART NUMBER	A	B	C	D	E
FD*9059B3000	1.204 (30.58)	0.984 (24.99)	0.275 (6.99)	0.554 (14.07)	0.545 (13.84)
FD*15059B3000	1.532 (38.91)	1.312 (33.32)	0.275 (6.99)	0.554 (14.07)	0.545 (13.84)
FD*25059B3000	2.072 (52.63)	1.852 (47.04)	0.275 (6.99)	0.554 (14.07)	0.545 (13.84)
FD*37059B3000	2.720 (69.09)	2.500 (63.50)	0.275 (6.99)	0.554 (14.07)	0.545 (13.84)
FD*50059B3000	2.626 (66.70)	2.406 (61.11)	0.275 (6.99)	0.604 (15.34)	0.545 (13.84)

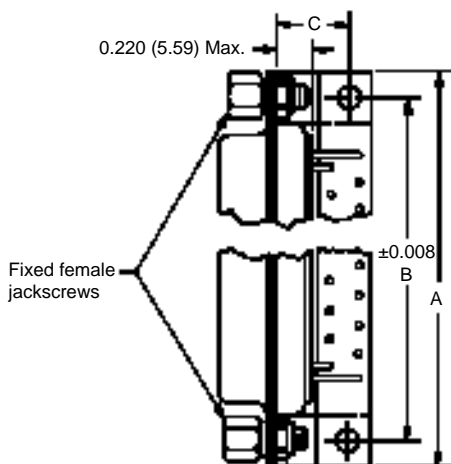


DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

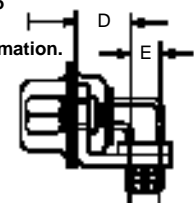


90° PRINTED BOARD MOUNT CONNECTOR

CODE 5, 0.283 (7.19) CONTACT EXTENSION



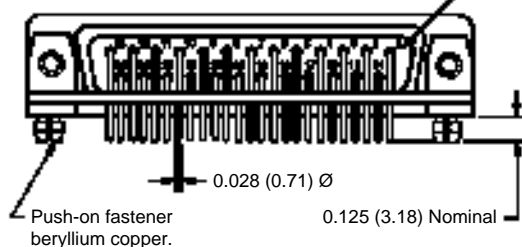
Specify code 5
in step 4 of
ordering information.



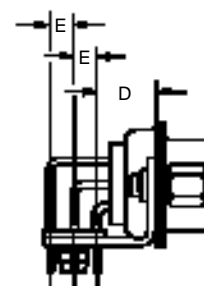
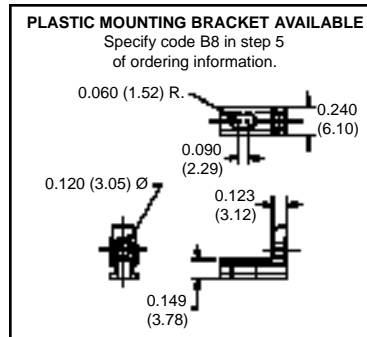
Typical part number:
FDA25M5R7NT2X

FD*005R7000 0.283 (7.19) CONTACT EXTENSION					
PART NUMBER	A	B	C	D	E
FD*905R7000	1.204 (30.58)	0.984 (24.99)	0.339 (8.61)	0.283 (7.19)	0.112 (2.84)
FD*1505R7000	1.532 (38.91)	1.312 (33.32)	0.339 (8.61)	0.283 (7.19)	0.112 (2.84)
FD*2505R7000	2.072 (52.63)	1.852 (47.04)	0.339 (8.61)	0.283 (7.19)	0.112 (2.84)
FD*3705R7000	2.720 (69.09)	2.500 (63.50)	0.339 (8.61)	0.283 (7.19)	0.112 (2.84)
FD*5005R7000	2.626 (66.70)	2.406 (61.11)	0.395 (10.03)	0.283 (7.19)	0.112 (2.84)

Numbering shown is rear view
of male and face view of female.



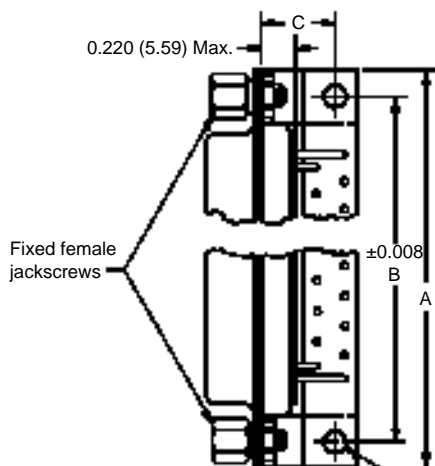
Push-on fastener
beryllium copper.



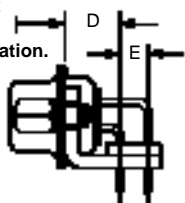
Typical part number:
FDA50M5R7NT2X

90° PRINTED BOARD MOUNT CONNECTOR

CODE 42, 0.370 (9.40) CONTACT EXTENSION



Specify code 42
in step 4 of
ordering information.

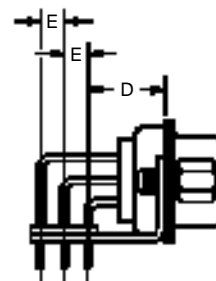
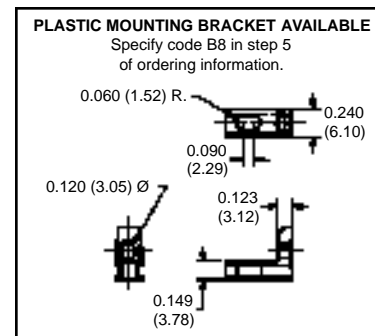
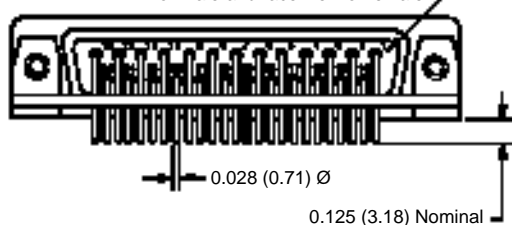


Typical part number:
FDA25M42B30T2X

FD*0042B3000 0.370 (9.40) CONTACT EXTENSION					
PART NUMBER	A	B	C	D	E
FD*9042B3000	1.204 (30.58)	0.984 (24.99)	0.420 (10.67)	0.370 (9.40)	0.100 (2.54)
FD*15042B3000	1.532 (38.91)	1.312 (33.32)	0.420 (10.67)	0.370 (9.40)	0.100 (2.54)
FD*25042B3000	2.072 (52.63)	1.852 (47.04)	0.420 (10.67)	0.370 (9.40)	0.100 (2.54)
FD*37042B3000	2.720 (69.09)	2.500 (63.50)	0.420 (10.67)	0.370 (9.40)	0.100 (2.54)
FD*50042B3000	2.626 (66.70)	2.406 (61.11)	0.470 (11.94)	0.370 (9.40)	0.100 (2.54)

0.125 (3.18) Ø Typ.

Numbering shown is rear view
of male and face view of female.



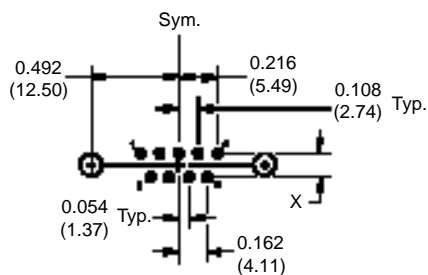
Typical part number:
FDA50M42B30T2X

DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

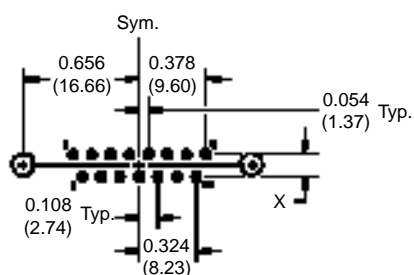
90° AND STRAIGHT PRINTED BOARD CONTACT HOLE PATTERN

Hole identification shown for male connector, use mirror image for female connector

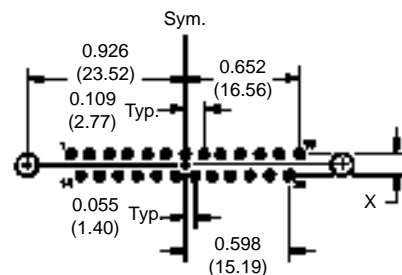
Mount connector with mating face positioned to follow direction of arrow



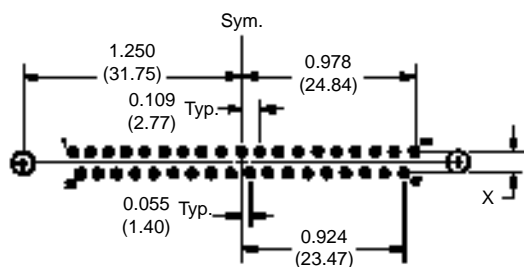
FD * 9



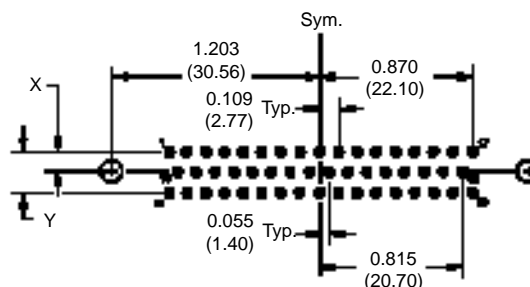
FD * 15



FD * 25



FD * 37



FD * 50

CODE NUMBER	X	Y
33	<u>0.112</u> (2.84)	<u>0.224</u> (5.69)
4	<u>0.112</u> (2.84)	<u>0.224</u> (5.69)
*42	<u>0.100</u> (2.54)	<u>0.200</u> (5.08)
5	<u>0.112</u> (2.84)	<u>0.224</u> (5.69)
59	<u>0.112</u> (2.84)	<u>0.224</u> (5.69)

*Metric system, European contact hole pattern.

Suggest 0.039 (0.99) Ø hole for 0.024 (0.61) Ø contact termination positions.

Suggest 0.045 (1.14) Ø hole for 0.028 (0.71) Ø contact termination positions.

Suggest 0.123±0.003 (3.12) Ø hole for mounting connector with push-on fasteners.

DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify the complete connector by following Steps 1 through 9.
Insert "0" when a step is not used.

STEP	1	2	3	4	5	6	7	8	9
	FDA	15	M	33	S6	0	T2	X	

STEP 1 - Basic Series

FDA – 1,000pF
FDD – 30,000pF
FDF – 5,000pF
FDX – 500pF

STEP 2 - FD Series Connector Variants

9, 15, 25, 37, 50

STEP 3 - Connector Gender

M – Male
F – Female

STEP 4 - Type of Contacts

2 – Solder
33 – Solder, Straight Printed Board Mount with 0.150 (3.81)
Tail Length, with Low Profile Insulator
4 – Solder, 90° Printed Board Mount with 0.450 (11.43)
Contact Extension
42 – Solder, Metric System 90° Printed Board Mount with
0.370 (9.40) Contact Extension
5 – Solder, 90° Printed Board Mount with 0.283 (7.19)
Contact Extension
59 – Solder, 90° Printed Board Mount with 0.545 (13.84)
Contact Extension
34 – Solder, Straight Printed Board Mount with 0.150 (3.91)
Length, with Low Profile Insulator used with External
Ferrite Inductor

*STEP 5 - Mounting Style

0 – Mounting Hole, 0.120 (3.05) Ø
B3 – Bracket, Mounting, 90° Metal with Cross Bar
B8 – Bracket, Mounting, 90° Plastic with Cross Bar
F – Float Mounts, Universal
P – Threaded Post, Brass, 0.225 (5.72) Length
P2 – Threaded Post, Nylon, 0.225 (5.72) Length
R2 – Bracket, Mounting, 90° Metal, Swaged to Connector with
4-40 Thread Fixed Female Jackscrews with Cross Bar
R6 – Bracket, Mounting, 90° Metal, Swaged to Connector with
0.120 (3.05) Ø Mounting Hole with Cross Bar
R7 – Bracket, Mounting, 90° Metal, Swaged to Connector with
4-40 Threads with Cross Bar
R8 – Bracket, Mounting, 90° Metal, Swaged to Connector with
4-40 Locknut with Cross Bar
S – Swaged Spacer, 4-40 Threads, 0.225 (5.72) Length
S2 – Swaged Spacer, 4-40 Threads, 0.125 (3.18) Length
S5 – Swaged Locknut, 4-40 Threads
S6 – Swaged Spacer with Push-on Fastener, 4-40 Threads,
0.225 (5.72) Length
S7 – Swaged Spacer with Push-on Fastener for use with
Ferrite Inductor, 4-40 Threads, 0.375 (9.53) Length

STEP 9 - Special Options

Consult Sales Department

STEP 8 - Shell Options

X – Tin Plated
Z – Tin Plated and Dimpled

*STEP 7 - Locking and Polarizing Systems

0 – None
T – Fixed Female Jackscrews
T2 – Fixed Female Jackscrews
T6 – Fixed Male and Female Polarized Jackscrews

*STEP 6 - Hoods and Push-On Fasteners

0 – None
N – Push-on Fastener, for 90° Mounting Brackets
**F – External Ferrite Inductor
**Q – External Ferrite Inductor
For use with Push-On Fastener and 90°
Mounting Brackets

Note: These options must be ordered with connector and
cannot be ordered separately.

*For additional information on accessories listed in steps
5, 6 and 7, see Accessory Catalog.

**External Ferrite Inductor is available on contact types 4,
34 and 59 only.

90° Printed Board Mounted connectors must be supplied
with angle brackets and cross bar.